



Corporate Overview

Darren Hammell, CEO

17th NREL Clean Energy Growth Forum
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Mission and Background

Company

- Clean power made simple
- AC-link power electronics



Markets

- Alternative energy (solar, wind)
- Industrial motor control (variable speed drive)
- Military (Navy, Air Force, Army)

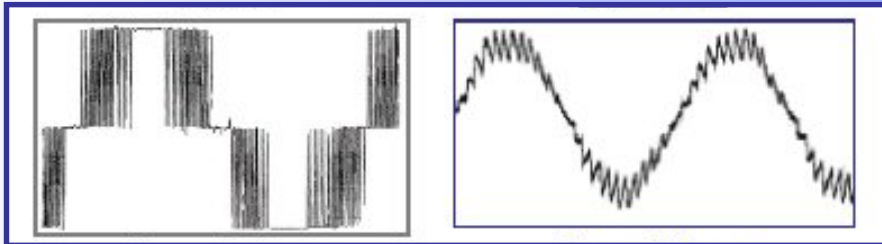


Power Electronics: AC-link

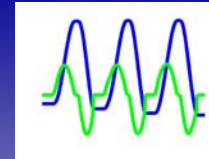
Power electronics competition

- Xantrex/Trace, SMA
- GE, ABB, Allen-Bradley, Square-D
- Alstom, DRS, SAIC, General Dynamics

Competition output voltage **AC-link** output voltage



AC-link Intellectual Property



Software
algorithms



Control
circuitry



Power
electronics



AC-link
Power Converter

US Patent #6,118,678
Provisional patents

Filed in PCT, Japan, India,
Germany, UK, and more

AC-link Products

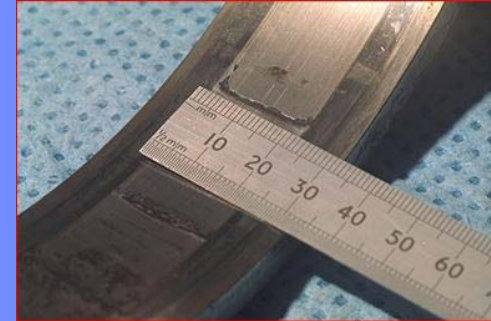
- Variable speed drive (VSD)

| | AC-link VSD | Competition |
|----------------------------|-------------|------------------|
| Variable speed operation | YES | YES |
| Max. installation distance | >5,000ft | 150ft |
| Motor failure rate | - | Increased by 25% |
| IEEE-519 spec | YES | NO |
| Price | \$ 20,000 | \$ 20,000 |

BOTTOM LINE:

Payback on energy savings in 1-2 years

Lower maintenance costs by \$5,000 per year over other VSDs



COMMERCIAL AND INDUSTRIAL CUSTOMERS

Energy Efficiency through motor control (VSD)
Wind and Solar distributed generation (GTI)

- Grid-tied Inverter (GTI)

| | AC-link GTI | Competition |
|-----------------|--------------|-------------|
| Max. efficiency | 96.50% | 95.00% |
| Size & weight | 40% decrease | - |
| Price | \$ 57,678 | \$ 69,241 |
| MPPT range | 10-1000VDC | 330-600VDC |

BOTTOM LINE:

Reduce cost of energy by 10%

More efficient, smaller, produces more usable power

COMPETITIVE ANALYSIS:

Competition uses mature, stagnant technology

No breakthroughs in 15+ years

Developing AC-link Products

- Military Products

- Rope-less elevator (Navy)
- ‘Active Denial’ power supply (Air Force)
- DDx main propulsion drive (Navy)
- Electronic transformer (Navy)



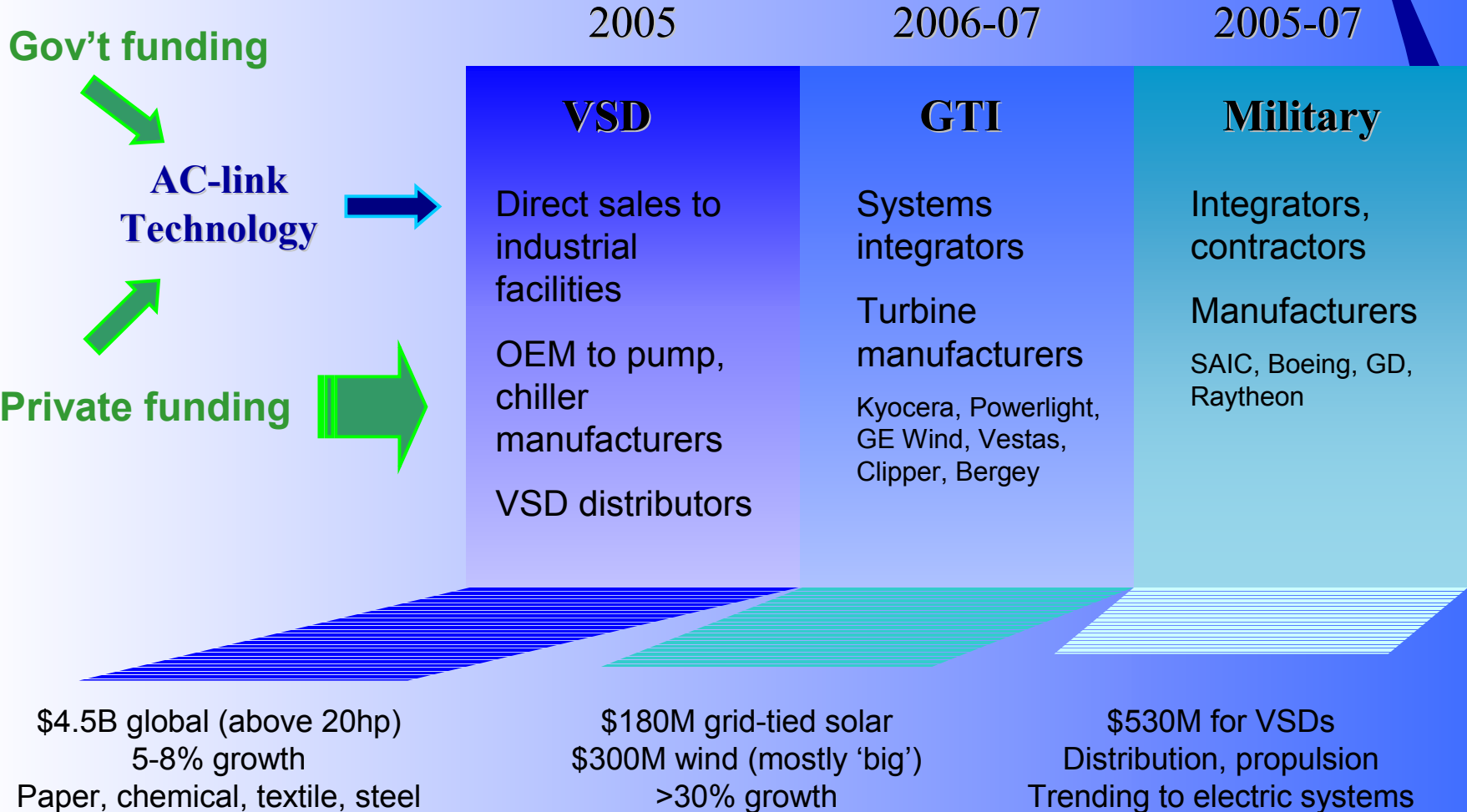
- Utility-scale Wind Turbine

- Reduce nacelle weight – locate converter at tower base
- Reduce generator failures
- Higher voltage designs



| | Today | Future Design |
|------------------------------------|---------------|---------------|
| Reduce drive train capital cost | 25.00% | 31.00% |
| Reduce turbine capital cost | 10.00% | 12.50% |
| Reduce lost energy (kWh's) | 15.00% | 15.00% |
| Reduce cost of energy (COE) | 12.80% | 14.95% |

Business Strategy



Accessible global market

Team

- **Advisors, Directors and Investors**

- **Dr. Joe Stach** – Senior Executive Advisor – former CEO RF Power, sold to Advanced Energy in 2001, on Director's Board of AVX (Kyocera), on-site at PPS two days per week
- **Dr. Ed Zschau** – Chairman of the Board – former US Congressman from Silicon Valley, General Partner at Brentwood Associates, currently visiting lecturer at Princeton University
- **Dr. Greg Olsen** – CEO Sensors Unlimited, founded and sold to Finissar for \$700M in 1998, repurchased in 2003 for \$6M

- **Management**

- **Darren Hammell** – President & CEO (since 2001) – founder, Princeton University grad.
- **Bill Stagg** – Vice President of Marketing and Sales – former President, Universal Electric Motor, former VP of Sales, Longo Industries, 20-years experience managing 25-person internal and field motor and drive sales teams

- **Engineering Team**

Mark Holveck – CTO, founder

Erik Limpaecher – Controls Engineer, founder

Casey Jacobson – Modeling Engineer

Dr. Tony Mavretic – Technical Consultant

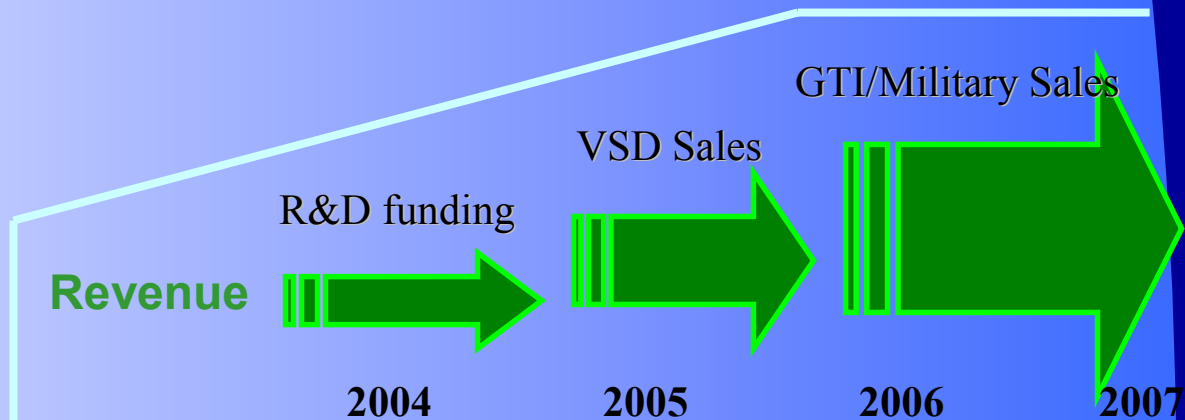
Dr. Rudy Limpaecher – Inventor of AC-link



Milestones

- Early 2003 • US Office of Naval Research Propulsion contract (sole source)
- Oct. 2003 • DoE Small Wind contract - Field testing in mid 2005
- Oct. 2003 • WorldWater SunPump contract - Field testing in early 2005
- Jan. 2004 • SAIC Teaming Agreement
 - ONR DDx Propulsion Drive
 - Active Denial Technology System
- April 2004 • DrivesMag article series launched
- May 2004 • VSD product sale (Power Superconductor Applications Corp.)
- Oct. 2004 • HIRE – Vice President of Sales – Bill Stagg

- VSD Sales



Financial Projections

| Cash Flow Projection | 2004 | 2005 | 2006 |
|--------------------------|----------------|-----------------|------------------|
| | Total | Total | Total |
| Contract revenue | \$ 580 | \$ 1,385 | \$ 716 |
| Sales revenue | \$ 25 | \$ 1,248 | \$ 18,984 |
| Total Revenue | \$ 605 | \$ 2,633 | \$ 19,700 |
| Total COS | \$ 676 | \$ 2,344 | \$ 10,948 |
| Gross Profit | \$ (71) | \$ 289 | \$ 8,752 |
| R&D labor | \$ 86 | \$ 435 | \$ 1,421 |
| Equipment & supplies | \$ - | \$ 12 | \$ 20 |
| Contractual | \$ - | \$ 10 | \$ 20 |
| Marketing & Sales | \$ 58 | \$ 260 | \$ 2,848 |
| General & Administrative | \$ 12 | \$ 56 | \$ 194 |
| Total Expenses | \$ 157 | \$ 772 | \$ 4,503 |
| Post-Tax Net Cash | \$ (228) | \$ (483) | \$ 2,974 |
| Closing Cash Balance | \$ (195) | \$ (678) | \$ 2,296 |

| Sales Revenue Projection | 2004 | 2005 | 2006 |
|--------------------------|--------------|-----------------|------------------|
| | Total | Total | Total |
| VSD Sales Revenue | \$ 25 | \$ 967 | \$ 14,224 |
| Military Sales Revenue | \$ - | \$ 54 | \$ 1,200 |
| GTI Sales Revenue | \$ - | \$ 227 | \$ 3,560 |
| Total Revenue | \$ 25 | \$ 1,248 | \$ 18,984 |
| Total COGS | \$ 13 | \$ 770 | \$ 10,208 |
| Gross Margin | \$ 12 | \$ 478 | \$ 8,776 |

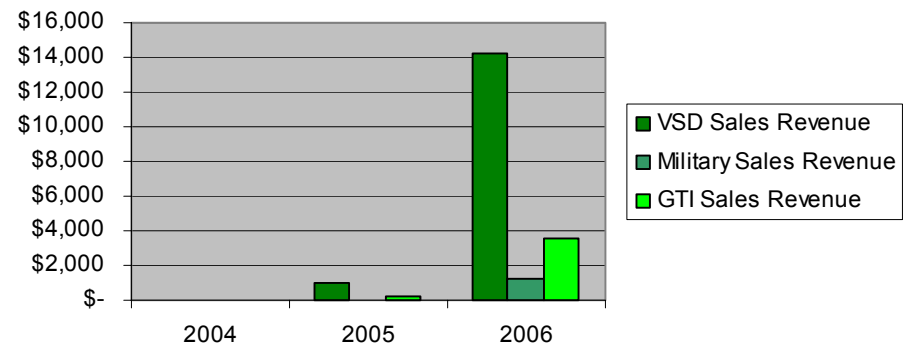
Equity investment to date of \$1M

Guaranteed credit line of \$500k

Cash needed to break-even – \$200k

Needed in June 2005

Sales Revenue by Product



Princeton Power Systems, Inc.

Clean power made simple.



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